

2005-2009 American Community Survey  
County-to-County Migration Files

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Working Paper No. 2012-06

U.S. Census Bureau

Washington, DC 20233

March 2012

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## **Executive Summary:**

This working paper accompanies the release of the County-to-County and County/Minor Civil Division (MCD)-to-County/MCD files, which use data collected by the American Community Survey (ACS) from 2005 through 2009. Historically, the Census Bureau has released migration flow products going back to the 1940 Census, the first year a previous residence question was asked on the Decennial Census. County/MCD-to-county/MCD files were produced from the 1980, 1990, and 2000 Census data. Prior to the release of this set of flow products, the only ACS migration flow tables available were for state-to-state flows.

This paper gives background information on the flow products previously published by the Bureau along with a description of the contents of the files, followed by a brief analysis of the estimates themselves.

The analysis, which focuses on flows within the United States excluding Puerto Rico, examines the inflow and outflow by county for both the number of movers and the number of flows between a county and other counties.

There is also a description of the planned set of migration flow products using the 2006-2010 ACS 5-year dataset, which will include cross-tabulations by basic demographic characteristics.

## **Introduction:**

The U.S. Census Bureau started to develop the American Community Survey in 1994 as an eventual replacement of the Census Long Form in collecting detailed social, economic, and housing data. After development and demonstration phases, the survey went into full implementation in 2005 with an annual sample size of approximately 3 million housing units. The 1-year ACS datasets provide estimates for areas with populations of 65,000 or more. Consecutive yearly datasets are combined to increase the sample size and provide reliable estimates for smaller areas. The first multiyear product combined the 2005, 2006, and 2007 1-year data into the 2005-2007 3-year dataset, which provided estimates for areas of population size 20,000 or greater. In December 2010, estimates down to the block group were released using the 2005-2009 ACS 5-year dataset. This was the first time ACS data were released for all counties or county equivalents within the U.S. and Puerto Rico. It is also the first dataset from which a complete set of county-to-county migration flows can be produced.

## **History of Migration Flow Estimates:**

Place of birth, a measure of lifetime migration, has been asked on the decennial census from 1850 to 2000. But the Census first asked about short-term migration, residence 5 years ago, on the 1940 Census questionnaire. The tabulated data were published in the series *Internal Migration 1935 to 1940*. There were four volumes covering race and sex, age, economic, and social characteristics of movers by U.S. regions, divisions, states, and cities of 100,000 population or larger. Some tables contained migration flows between those geographies. A complete cross-classification of residence in 1940 with residence in 1935 was tabulated for all area combinations for the series and those statistics were made available to the public upon request.

In the 1950 Census, the question was changed to ask residence 1 year prior, that is 1949. State-to-state flows for all movers and by race were published in *Population Mobility – States and State Economic Areas*. Migrants between state economic areas<sup>1</sup> were tabulated and made available upon request by state economic area of 1949 for selected characteristics: residence for urban-rural residence in 1950, farm-nonfarm residence in 1949, years of school completed by sex and major occupation group by sex, race, age, marital status, income, and employment status. For state economic areas with 25,000 nonwhites or more, similar statistics were tabulated on the characteristics of nonwhites.

The 1960 question returned to using a 5-year interval. A subject report, *Migration Between State Economic Areas* was published. It contained tables for state economic area of residence in 1960 by state economic area of residence in 1955 and economic subregion of residence in 1960 by economic subregion of residence in 1955. Economic subregions are consolidated groups of state economic areas that can cross state boundaries.

Likewise, the table for state economic area of residence in 1970 by state economic area of residence in 1965 was published in book form and additional detailed statistics were available by request. The subject report *Mobility for States and the Nation* contained state of residence in 1970 by state of residence in 1965 including tables for all movers, negro, persons enrolled in college in 1970, persons enrolled in college in 1965, persons in the armed forces in 1970, and persons in the armed forces in 1965. Additionally, Universal Area Code<sup>2</sup> in 1965 to Universal Area Code in 1970 estimates were issued on tape for the 1970 Census.

The summary tape file *County-to-County Migration Flow* was released with the 1980 Census data.<sup>3</sup> The file contained twenty tables and also included flows for minor civil divisions within New England. Some suppression was applied to cells or geographies that had too few cases. In those instances, either the data were not published or combined with other groups. Another summary tape file, *Inter-County Migration Flow*, contained the county-to-county migration flows without characteristics and without suppression.<sup>4</sup>

Building upon 1980 data products, a set of two CDs (SP312) was released for the 1990 Census and a DVD was released from Census 2000 relating to county/mcd-to-county/mcd migration flows.<sup>5</sup> The flows without any

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<sup>1</sup> State economic areas are relatively homogeneous subdivisions of states consisting of single counties or groups of counties which have similar economic and social characteristics. In 1950, the country was subdivided into 501 state economic areas, but because some of the sparsely populated agricultural areas were combined, the 1950 tables only had 443 areas. The number of state economic areas increased to 509 in 1960 and 510 in 1970.

<sup>2</sup> Universal Area Codes (UAC) are five-digit codes assigned for all central cities of Standard Metropolitan Statistical Areas (SMSAs), selected towns, and all counties and central business districts in the U.S.

<sup>3</sup> The technical documentation can be found at <[www2.census.gov/prod2/decennial/documents/D1-D80-CMIG-14-TECH.pdf](http://www2.census.gov/prod2/decennial/documents/D1-D80-CMIG-14-TECH.pdf)>.

<sup>4</sup> The 1980 Inter-County Migration Flow data file is available through the National Archives at <[www.archives.gov/research/census/1980-statistics.html](http://www.archives.gov/research/census/1980-statistics.html)> and the technical documentation at <[www2.census.gov/prod2/decennial/documents/D1-D80-CMIG-14-TECH1.pdf](http://www2.census.gov/prod2/decennial/documents/D1-D80-CMIG-14-TECH1.pdf)>.

<sup>5</sup> The 1990 County-to-County Migration CD order information can be found at <[www.census.gov/mp/www/cat/decennial\\_census\\_1990/1990\\_county\\_to\\_county\\_migration\\_special\\_project\\_312\\_sp312.html](http://www.census.gov/mp/www/cat/decennial_census_1990/1990_county_to_county_migration_special_project_312_sp312.html)> and technical documentation at <[www.census.gov/prod/www/abs/decennial/1990tecdoc.html](http://www.census.gov/prod/www/abs/decennial/1990tecdoc.html)>.

More information on the Census 2000 Migration DVD can be found at <[www.census.gov/population/www/cen2000/migration/mig\\_dvd.html](http://www.census.gov/population/www/cen2000/migration/mig_dvd.html)>.

characteristics were made available as a special tabulation for the 1990 Census<sup>6</sup>; whereas for Census 2000 it was made available on the Census Bureau website along with Metropolitan Area-to-Metropolitan Area flows.

While county level migration flow data for ACS was not produced before the 2005-2009 county-to-county files, estimates for immigration and outmigration by characteristics have been available the past few years. Tables that include immigration estimates by age, sex, race/Hispanic origin, citizenship, marital status, educational attainment, individual income, poverty status, and tenure are available since the 2004 survey year for all geographic summary levels published for the ACS. Tables, including outmigration estimates by the same characteristics were added to the 2007 ACS, but limited to states, counties, minor civil divisions (MCDs)<sup>7</sup>, metropolitan/micropolitan areas, metropolitan divisions, combined statistical areas, New England City and Town Areas (NECTAs), NECTA divisions, and combined NECTAs. Places and principals cities are being phased in for: 1-year ACS for 2008, 3-year ACS for 2008-2010, and 5-year ACS for 2008-2012.

In 2006, the first ACS content test was conducted to test new and modified content proposed for the survey.<sup>8</sup> The test included changes to the migration section. The original questions asked respondents who moved within the U.S. for the city, town, or post office; county; state; and zip code of residence 1 year ago (see Figure 1). There was also a question on whether they lived inside city or town limits. The test questions asked for respondent's full address; city, town, or post office; county; state; and zip code of residence 1 year ago for respondents who lived in the U.S. or Puerto Rico (see Figure 2). The change was accepted and implemented in 2008. The more detailed information allows additional coding of the responses to tract and block, rather than just state, county, subcounty, and city or town. This results in better accuracy of the data (e.g., distinguishing between St. Louis Independent city and St. Louis county) and updating geography due to changes (e.g., annexation, incorporation, boundary corrections).

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<sup>6</sup> Special Tabulation 28 is available through third party sites such as the Missouri Data Center (<[mcdc2.missouri.edu/cgi-bin/uexplore?/pub/data/stp28](http://mcdc2.missouri.edu/cgi-bin/uexplore?/pub/data/stp28)>) or Columbia University (<[sedac.ciesin.columbia.edu/plue/cenguide.html](http://sedac.ciesin.columbia.edu/plue/cenguide.html)>).

<sup>7</sup> Minor civil division are published only for Connecticut, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Wisconsin.

<sup>8</sup> The report *2006 American Community Survey Content Test Report: Evaluation Report Covering Residence 1 Year Ago (Migration)* can be found at <[www.census.gov/acs/www/Downloads/library/2007/2007\\_Boertlein\\_01.pdf](http://www.census.gov/acs/www/Downloads/library/2007/2007_Boertlein_01.pdf)>.

**14** a. Did this person live in this house or apartment 1 year ago?

Person is under 1 year old → SKIP to the questions for Person 2 on page 10.

Yes, this house → SKIP to **F**

No, outside the United States – Print name of foreign country, or Puerto Rico, Guam, etc., below; then SKIP to **F**

No, different house in the United States

**b. Where did this person live 1 year ago?**

**Name of city, town, or post office**

**c. Did this person live inside the limits of the city or town?**

Yes

No, outside the city/town limits

**Name of county**

**Name of state**

**ZIP Code**

Figure 1: Migration question on 2007 ACS

**14** a. Did this person live in this house or apartment 1 year ago?

Person is under 1 year old → SKIP to question 15

Yes, this house → SKIP to question 15

No, outside the United States and Puerto Rico – Print name of foreign country, or U.S. Virgin Islands, Guam, etc., below; then SKIP to question 15

No, different house in the United States or Puerto Rico

**b. Where did this person live 1 year ago?**

**Address (Number and street name)**

**Name of city, town, or post office**

**Name of U.S. county or municipio in Puerto Rico**

**Name of U.S. state or Puerto Rico**

**ZIP Code**

Figure 2: Migration question on 2008 ACS

**Disclosure Avoidance:**

Due to the amount of data released through standard 5-year ACS data products (11.1 billion estimates, not all unique, covering more than 670,000 distinct geographies for 2005-2009 ACS<sup>9</sup>), and the fact that public use microdata samples (PUMS), and sequential annual 5-year estimates contain overlapping samples, the Census Bureau must be vigilant to protect confidentiality of the respondents. Any data products that the Census Bureau releases must be reviewed and approved by the Disclosure Review Board based on disclosure avoidance rules to assure confidentiality of the respondents is protected according to Section 9 of Title 13 of the United States Code. It states “Neither the Secretary, nor any other officer or employee of the Department of Commerce or bureau or agency thereof, or local government census liaison may...make any publication whereby the data furnished by any particular establishment or individual under this title can be identified...”<sup>10</sup>

<sup>9</sup> For more information, see news release for the 2005-2009 ACS at [www.census.gov/newsroom/releases/archives/american\\_community\\_survey\\_acs/cb10-cn90.html](http://www.census.gov/newsroom/releases/archives/american_community_survey_acs/cb10-cn90.html).

<sup>10</sup> For more information on how Census data are protected see [www.census.gov/privacy/data\\_protection/](http://www.census.gov/privacy/data_protection/).

Record swapping<sup>11</sup>, used to protect confidentiality is applied to the dataset used to create the straight flow files. Additional disclosure avoidance measures, such as suppressing flows containing only one or two persons from different households, are applied for any flows with characteristics. Flow counts and mover counts without characteristics, however, are not suppressed. The exact measures are determined by the Disclosure Review Board before each future product is released.

**Blank Values:**

There are any of three reasons an estimate may be blank.

1. The estimate is out of scope for the ACS sample – such as the population 1 year and over for Europe.
2. The estimate does not exist – such as movers to a different county in the same state for the District of Columbia.
3. No records for the estimate were surveyed. The margin of errors (MOE) for these zero count estimates cannot be calculated using the standard replicate variance formula.<sup>12</sup> For published ACS data products, the MOE for a zero count estimate is calculated using the average weights at the state and national levels. Zero count estimates within the state of current residence use the MOE based upon that state’s average weight.

Flows with no records in the dataset are not included in the files. There are also zero count estimates. The margin of errors for the zero count estimates are in the following table.

<b>State of Current Residence</b>	<b>MOE for zero count estimate</b>	<b>State of Current Residence</b>	<b>MOE for zero count estimate</b>	<b>State of Current Residence</b>	<b>MOE for zero count estimate</b>
Alabama	119	Maryland	127	South Carolina	127
Alaska	109	Massachusetts	127	South Dakota	99
Arizona	132	Michigan	109	Tennessee	127
Arkansas	119	Minnesota	93	Texas	127
California	132	Mississippi	127	Utah	119
Colorado	123	Missouri	114	Vermont	93
Connecticut	123	Montana	104	Virginia	127
Delaware	119	Nebraska	99	Washington	119

<sup>11</sup> Data swapping was the main procedure used for protecting Census 2000 tabulations and is also used for ACS tabulations. In each case, a small percentage of household records are swapped. Pairs of households in different geographic regions are swapped. The selection process for deciding which households should be swapped is highly targeted to affect the records with the most disclosure risk. Pairs of households that are swapped match on a minimal set of demographic variables. All data products are created from the swapped data files. (U.S. Census Bureau, Design and Methodology, 2009)

<sup>12</sup> For more information concerning the calculation of margin of errors, see chapter 12 of *Design and Methodology: American Community Survey*.

District of Columbia	132	Nevada	132	West Virginia	119
Florida	136	New Hampshire	114	Wisconsin	93
Georgia	132	New Jersey	123	Wyoming	119
Hawaii	119	New Mexico	127	Puerto Rico	127
Idaho	114	New York	123		
Illinois	119	North Carolina	127		
Indiana	119	North Dakota	93		
Iowa	99	Ohio	119		
Kansas	109	Oklahoma	109		
Kentucky	123	Oregon	123		
Louisiana	123	Pennsylvania	109		
Maine	104	Rhode Island	127		

**Coverage and Group Quarter Population:**

The American Community Survey covers the entire population residing in the U.S. and Puerto Rico, both in housing units and group quarter facilities. Each year, independent housing unit address samples are selected for each county equivalent in the U.S. and Puerto Rico. Samples of group quarters facilities and group quarters persons are done at the state level, including Puerto Rico and District of Columbia.

The group quarters population include people living in correctional institutions, juvenile detention facilities, nursing homes, other long-term care facilities, college dormitories, military facilities, and other noninstitutional facilities. In ACS, weighting for the group quarters population is controlled at the state level. Additionally, higher rates of inter-county migration for people in group quarters compared to the general public can lead to an occasional anomaly in the number of movers between a county pair. The 2005-2009 ACS inter-county mover rates for group quarters are shown in the table below. The estimated group quarters population for a county can be found in a detailed table (B26001) on American FactFinder.

	Total population 1 year and over		Percent movers between counties within U.S.		Percent movers from abroad	
	Percent	MOE	Percent	MOE	Percent	MOE
Total:	297,355,080	+/-10,469	6.0%	+/-0.1	0.6%	+/-0.1
Group quarters:	8,209,986	+/-1,006	31.4%	+/-0.2	1.7%	+/-0.1
Adult correctional facilities	2,129,871	+/-2,160	37.6%	+/-0.3	0.9%	+/-0.1
Nursing facilities/skilled facilities	1,815,232	+/-4,060	8.8%	+/-0.2	0.1%	+/-0.1
College/university housing	2,363,074	+/-1,217	45.1%	+/-0.5	2.6%	+/-0.1

Source: U.S. Census Bureau, 2005-2009 American Community Survey, Subject Table S2601B

## **Format of the Files:**

There are separate text and Excel files for flows between counties and flows between minor civil divisions (MCDs) in some selected states. In several states, minor civil divisions are county subdivisions that are the primary governmental or administrative divisions of a county. The MCD governments, in 12 states, serve as general-purpose local governments similar to incorporated municipalities.<sup>13</sup> In some of these states, county government is limited or non-existent; therefore, MCDs are used as the main substate aggregate unit rather than counties. These 12 states are assigned MCD codes for residence 1 year ago during the geocoding process for ACS.

### County-to-County Flow Files

The County-to-County Flows files are provided in two formats. There is one fixed field length national text file sorted by current residence geography. There is also a 1997-2003 Excel file containing a worksheet for each state of current residence, including Puerto Rico and District of Columbia, and another Excel file containing a worksheet for each state of residence 1 year ago.

Besides the county of current residence, county of residence 1 year ago, and the number of movers between the two, the files also contain additional geographical mobility estimates for each county, along with the margin of error (MOE) at the 90-percent confidence level. (For further information about the geographies used for the files see Appendix B.)

The layout of the text file is as follows:

<b>Field Description</b>	<b>Field Position</b>
Current Residence FIPS State Code	1-3
Current Residence FIPS County Code	4-6
Residence 1 Year Ago FIPS State Code/U.S. Island Areas Code/Foreign Region Code	7-9
Residence 1 Year Ago FIPS County Code	10-12
Current Residence State Name	14-43
Current Residence County Name	44-78
Population 1 Year and Over Current County – Estimate	80-87
Population 1 Year and Over Current County – MOE	89-96
Nonmovers Current County – Estimate	98-104
Nonmovers Current County – MOE	106-112
Movers within the U.S. for Current County – Estimate	114-120
Movers within the U.S. for Current County – MOE	122-128
Movers within the Same County for Current County – Estimates	130-136
Movers within the Same County for Current County – MOE	138-144

<sup>13</sup> For more information on geographic terms and concepts, see <[www.census.gov/geo/www/reference.html](http://www.census.gov/geo/www/reference.html)>.



Movers from a Different County in the Same State for Current County – Estimate	146-152
Movers from a Different County in the Same State for Current County – MOE	154-160
Movers from a Different State for Current County – Estimate	162-168
Movers from a Different State for Current County – MOE	170-176
Movers from Abroad – Estimate	178-184
Movers from Abroad – MOE	186-192
Residence 1 Year Ago State Name/U.S. Island Areas/Foreign Region	194-223
Residence 1 Year Ago County Name	224-258
Population That Lived in County 1 Year Ago – Estimate	260-267
Population That Lived in County 1 Year Ago – MOE	269-276
Nonmovers County of Residence 1 Year Ago – Estimate	278-284
Nonmovers County of Residence 1 Year Ago– MOE	286-292
Movers within the U.S. for County of Residence 1 Year Ago – Estimate	294-300
Movers within the U.S. for County of Residence 1 Year Ago – MOE	302-308
Movers within the Same County for County of Residence 1 Year Ago – Estimates	310-316
Movers within the Same County for County of Residence 1 Year Ago – MOE	318-324
Movers to a Different County in the Same State for County of Residence 1 Year Ago – Estimate	326-332
Movers to a Different County in the Same State for County of Residence 1 Year Ago – MOE	334-340
Movers to a Different State for County of Residence 1 Year Ago – Estimate	342-348
Movers to a Different State for County of Residence 1 Year Ago – MOE	350-356
Movers to Puerto Rico – Estimate	358-364
Movers to Puerto Rico – MOE	366-372
Movers within Flow – Estimate	374-380
Movers within Flow – MOE	382-388

## County/MCD-to-County/MCD Flow Files

The County/MCD-to-County/MCD files are similar to the County-to-County files except that minor civil divisions are used instead of counties for Connecticut, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Wisconsin.

There is one fixed field length national text file sorted by current residence geography. There is also a 1997-2003 Excel file containing a worksheet for each state of current residence, including Puerto Rico and District of Columbia, and an another Excel file containing a worksheet for each state of residence 1 year ago.

In addition to the county or MCD of current residence, county or MCD of residence 1 year ago, and the number of movers between the two, the files also contain additional geographical mobility estimates for each county or MCD, along with the margin of error (MOE) at the 90-percent confidence level. (For further information about the geographies used for the files see Appendix B.)

The layout of the text file is as follows:

<b>Field Description</b>	<b>Field Position</b>
Current Residence FIPS State Code	1-3
Current Residence FIPS County Code	4-6
Current Residence FIPS MCD Code (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)	7-11
Residence 1 Year Ago FIPS State Code/U.S. Island Areas Code/Foreign Region Code	12-14
Residence 1 Year Ago FIPS County Code	15-17
Residence 1 Year Ago FIPS MCD Code (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)	18-22
Current Residence State Name	24-53
Current Residence County Name	54-88
Current Residence MCD Name (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)	89-133
Population 1 Year and Over Current County/MCD – Estimate	135-142
Population 1 Year and Over Current County/MCD – MOE	144-151
Nonmovers Current County/MCD – Estimate	153-159
Nonmovers Current County/MCD – MOE	161-167
Movers within the U.S. for Current County/MCD – Estimate	169-175
Movers within the U.S. for Current County/MCD – MOE	177-183
Movers within the Same County/MCD for Current County/MCD – Estimates	185-191
Movers within the Same County/MCD for Current County/MCD – MOE	193-199
Movers from a Different County/MCD in the Same State for Current County/MCD – Estimate	201-207
Movers from a Different County/MCD in the Same State for Current County/MCD –	209-215

MOE	
Movers from a Different State for Current County/MCD – Estimate	217-223
Movers from a Different State for Current County/MCD – MOE	225-231
Movers from Abroad – Estimate	233-239
Movers from Abroad – MOE	241-247
Residence 1 Year Ago State Name/U.S. Island Area/Foreign Region	249-278
Residence 1 Year Ago County Name	279-313
Residence 1 Year Ago MCD Name (CT, ME, MA, MN, MI, NH, NJ, NY, PA, RI, VT, WI only)	314-358
Population That Lived in County/MCD 1 Year Ago – Estimate	360-367
Population That Lived in County/MCD 1 Year Ago – MOE	369-376
Nonmovers County/MCD of Residence 1 Year Ago – Estimate	378-384
Nonmovers County/MCD of Residence 1 Year Ago– MOE	380-392
Movers within the U.S. for County/MCD of Residence 1 Year Ago – Estimate	394-400
Movers within the U.S. for County/MCD of Residence 1 Year Ago – MOE	402-408
Movers within the Same County/MCD for County/MCD of Residence 1 Year Ago – Estimates	410-416
Movers within the Same County/MCD for County/MCD of Residence 1 Year Ago – MOE	418-424
Movers to a Different County/MCD in the Same State for County/MCD of Residence 1 Year Ago – Estimate	426-432
Movers to a Different County/MCD in the Same State for County/MCD of Residence 1 Year Ago – MOE	434-440
Movers to a Different State for County/MCD of Residence 1 Year Ago – Estimate	442-448
Movers to a Different State for County/MCD of Residence 1 Year Ago – MOE	450-456
Movers to Puerto Rico – Estimate	458-464
Movers to Puerto Rico – MOE	466-472
Movers within Flow – Estimate	474-480
Movers within Flow – MOE	482-488

**Analysis:**

This section of the paper provides a basic analysis of the flow count estimates for the county-to-county files. This analysis is limited to flows between U.S. counties and does not include movers from abroad. This paper presents four tables and examines two units of analysis, county-to-county flow pairs and county-to-county movers, simultaneously. A county-to-county flow pair consists of the county of current residence at the time the ACS was conducted and the county of residence 1 year before then. The number of county-to-county movers is the estimated number of people age 1 year and over who moved between the county pair in a typical 1 year

interval within the period 2005-2009. The county flows show how diverse the movement into or out of a county is, while the number of movers shows the magnitude of those flows. As stated previously, no restrictions are placed on providing the number of flow counts and mover counts between county pairs.

The county-to-county flow pairs and movers in the ACS 5-year estimates are not the summation of five years of data. Rather, the 2005-2009 ACS 5-year estimates are a yearly average<sup>14</sup> for this time period.

## Results

### *Flows*

The counts of “flows” for each origin and destination pair are presented in Tables 1 and 2, sorted from largest to smallest. In Table 1, Maricopa County, Arizona ranks as number one in the origin flow counts. Of the 3,141 counties in the U.S. that experienced outmigration, the movers leaving Maricopa County, Arizona moved to 1,156 other counties. In other words, there were 1,156 “county flow pairs” associated with Maricopa County, Arizona when it was examined as an origin county. Those 1,156 flows constituted about half of one percent of the total 238,435 county-to-county flows in the United States.

The top ten origin counties are rounded out by Los Angeles County, California; Cook County, Illinois; San Diego County, California; Harris County, Texas; Clark County, Nevada; Dallas County, Texas; Hillsborough County, Florida; Tarrant County, Texas; and Orange County, Florida. Aside from Cook County, Illinois, most of the origin counties are in the west and in Florida. Some of the origin counties with the smallest number of flow pairs are Sioux County, Nebraska; Billings County, North Dakota; Kenedy County, Texas; Kalawao County, Hawaii; Grant County, Nebraska; Borden County, Texas; Loving County, Texas; Esmeralda County, Nevada; Storey County Nevada; and Yakutat City and Borough, Alaska. Neither Loup County nor McPherson County in Nebraska had any outflow migration.

In Table 2, Maricopa County, Arizona has the largest number of flow pairs, but this time it has the largest number of destination flow counts. This means that all of the movers who came to Maricopa County came from 993 different counties. Another way to think about the number of flows in and out is if you have a large number of flows in and out of a county is imagining that the number is an indication of a more dispersed population. The higher the number of flows in and out of a county, the more widespread the movers are throughout the country. If the number of flows is low, the more concentrated the origin/destination counties.

The remaining destination counties among the top ten are Harris County, Texas; San Diego County, California; Los Angeles County, California; Cook County, Illinois; Bexar County, Texas; Clark County, Nevada; Tarrant County, Texas; Richland County, South Carolina; and Dallas County, Texas. Some of the largest flows for origin counties

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<sup>14</sup> See ASCO document for more details (pp. 15-20):  
U.S. Census Bureau. (2010). Chapter 11. Weighting and Estimation. Retrieved from  
<[www.census.gov/acs/www/Downloads/survey\\_methodology/Chapter\\_11\\_RevisedDec2010.pdf](http://www.census.gov/acs/www/Downloads/survey_methodology/Chapter_11_RevisedDec2010.pdf)>.

coincide with destination counties with large flows, but new counties like Bexar County, Texas and Richland County, South Carolina appear as well. Based on these tables we also know that there are 3,142 sending counties and 3,141 receiving counties. Some of the destination counties with the smallest number of flow pairs are Petroleum County, Montana; Eureka County, Nevada; Blaine County, Texas; Loup County, Nevada; Oliver County, North Dakota; Liberty County, Montana; Baker County, Georgia; Kalawao County, Hawaii; Loving County, Texas; and Hinsdale County, Colorado. The last four were the smallest destination county with just one flow in each. Kenedy County, Texas had no inflow migration.

### *Movers*

Unlike Tables 1 and 2 focusing on flows, Tables 3 and 4 focus on the actual number of movers from and to counties. The data are sorted from largest to smallest, and among the largest origin counties are Los Angeles County, California; Cook County, Illinois; Harris County, Texas; Maricopa County, Arizona; San Diego County, California; Dallas County, Texas; Orange County, California; Kings County, New York; New York County, New York; and San Bernardino County, California. When we look at number of movers rather than number of flows, we see that in addition to counties in California, Texas, Illinois, Nevada, and Florida, counties in New York also appear. Looking at the bottom of the list, among the smallest number of movers are Terrell County, Texas; Arthur County, Nebraska; Hayes County, Nebraska; Borden County, Texas; Billings County, North Dakota; Blaine County, Nebraska; Grant County, Nebraska; Slope County, North Dakota; Loving County, Texas; and just four persons left Yakutat City and Borough, Alaska.

Table 4 contains the total number of movers entering each destination county. Among the largest destination counties for movers are Los Angeles County, California; Maricopa County, Arizona; Harris County, Texas; Cook County, Illinois; San Diego County, California; Riverside County, California; Dallas County, Texas; San Bernardino County, California; Orange County, California; and King County, Washington. For movers, it seems that the biggest destination counties are in California, Arizona, Texas, Illinois, and Washington. At the bottom of the list, among the smallest number of movers entering are McPherson County, Nebraska; Keya Paha County, Nebraska; Hayes County, Nebraska; Baker County, Georgia; Kalawao County, Hawaii; Loving County, Texas; Loup County, Nebraska; Hinsdale County, Colorado; Liberty County, Montana; and just four people moved into Oliver County, North Dakota.

Another way to use these data is to analyze the net gains or losses. By comparing Tables 3 and 4, one can calculate a county's net number of movers. For example, Los Angeles County, California lost 372,331 people to other counties (Table 3) and gained 212,882 people (Table 4), producing a net migration loss of 159,449 people for these years. Even though Los Angeles County, California sends more people than it receives, it is still the largest destination county in the U.S.

### **Summary/Conclusion**

Flow counts and mover counts by origin and destination are now available at a county-to-county level using the 2005-2009 ACS. In general, most of the county-to-county movement in the U.S. is occurring in the southwest. Counties in other regions are experiencing a great deal of movement, most notably Cook County, Illinois. Maricopa County, Arizona has the largest number of flows as an origin county as well as the largest number of flows as a destination county. Los Angeles County, California has the highest number of movers entering from another county as well as the highest number of movers leaving for another county.

Counties with the smallest number of flows in and out are mostly located in the less populated areas of the West, Midwest, and South regions. The same is true for the smallest number of movers.

### **Future Releases**

As this is the first county-to-county migration data to be released using the ACS, only counts for flows and movers have been presented. However, with future releases of five-year data, current plans are to include basic demographic characteristic cross-tabulations. Starting with the release of the 2006-2010 ACS county/mcd-to-county/mcd migration flows, files will be released with selected characteristics: age, sex, and race/Hispanic origin. Files using additional characteristics will be released in sequential years. We welcome input on other characteristics that could be useful for future data releases. Also, additional analysis will be released in the future comparing the distribution of movers and county-to-county flows for the 2005-2009 ACS and Census 2000.

**Appendix A: Tables** (Expanded Tables are available at <[www.census.gov/hhes/migration/data/acs/county-to-county.html](http://www.census.gov/hhes/migration/data/acs/county-to-county.html)>

**Table 1. Origin Flow Counts, 2005-2009 5-Year ACS**

	<b>State</b>	<b>County</b>	<b>Flow Count</b>	<b>Percent</b>
1	Arizona	Maricopa County	1,156	0.48%
2	California	Los Angeles County	1,091	0.46%
3	Illinois	Cook County	1,033	0.43%
4	California	San Diego County	967	0.41%
5	Texas	Harris County	948	0.40%
6	Nevada	Clark County	866	0.36%
7	Texas	Dallas County	755	0.32%
8	Florida	Hillsborough County	711	0.30%
9	Texas	Tarrant County	709	0.30%
10	Florida	Orange County	686	0.29%
11	Texas	Bexar County	671	0.28%
12	Georgia	Fulton County	642	0.27%
13	Colorado	El Paso County	631	0.26%
13	Washington	King County	631	0.26%
15	California	San Bernardino County	628	0.26%
16	California	Orange County	626	0.26%
17	Florida	Broward County	622	0.26%
18	Florida	Miami-Dade County	617	0.26%
19	California	Riverside County	609	0.26%
20	Michigan	Wayne County	605	0.25%
...				
3124	Texas	McMullen County	2	0.00%
3124	Texas	Motley County	2	0.00%
3124	North Dakota	Slope County	2	0.00%
3124	Nebraska	Banner County	2	0.00%
3124	Nebraska	Blaine County	2	0.00%
3124	Texas	Glasscock County	2	0.00%
3124	Texas	King County	2	0.00%
3124	Nebraska	Sioux County	2	0.00%
3124	North Dakota	Billings County	2	0.00%
3124	Texas	Kenedy County	2	0.00%
3135	Hawaii	Kalawao County	1	0.00%
3135	Nebraska	Grant County	1	0.00%
3135	Texas	Borden County	1	0.00%
3135	Texas	Loving County	1	0.00%
3135	Nevada	Esmeralda County	1	0.00%
3135	Nevada	Storey County	1	0.00%
3135	Alaska	Yakutat City and Borough	1	0.00%
3142	Nebraska	Loup County	0	0.00%
3143	Nebraska	McPhearson County	0	0.00%
		<b>Total</b>	<b>238,435</b>	<b>100.00%</b>

Source: U.S. Census Bureau, 2005-2009 American Community Survey

**Table 2. Destination Flow Counts, 2005-2009 5-Year ACS**

	<b>State</b>	<b>County</b>	<b>Flow Count</b>	<b>Percent</b>
1	Arizona	Maricopa County	993	0.42%
2	Texas	Harris County	806	0.34%
3	California	San Diego County	795	0.33%
4	California	Los Angeles County	741	0.31%
5	Illinois	Cook County	732	0.31%
6	Texas	Bexar County	722	0.30%
7	Nevada	Clark County	698	0.29%
8	Texas	Tarrant County	670	0.28%
9	South Carolina	Richland County	623	0.26%
10	Texas	Dallas County	618	0.26%
11	Colorado	El Paso County	595	0.25%
12	Arizona	Pima County	560	0.23%
13	North Carolina	Onslow County	552	0.23%
14	Florida	Hillsborough County	550	0.23%
15	Washington	King County	545	0.23%
16	Georgia	Muscogee County	544	0.23%
17	North Carolina	Wake County	534	0.22%
18	Florida	Escambia County	523	0.22%
19	Tennessee	Davidson County	517	0.22%
20	Hawaii	Honolulu County	516	0.22%
...				
3132	Idaho	Clark County	2	0.00%
3132	Montana	Petroleum County	2	0.00%
3132	Nevada	Eureka County	2	0.00%
3132	Nebraska	Blaine County	2	0.00%
3132	Nebraska	Loup County	2	0.00%
3132	North Dakota	Oliver County	2	0.00%
3132	Montana	Liberty County	2	0.00%
3139	Georgia	Baker County	1	0.00%
3139	Hawaii	Kalawao County	1	0.00%
3139	Texas	Loving County	1	0.00%
3139	Colorado	Hinsdale County	1	0.00%
3143	Texas	Kenedy County	0	0.00%
<b>Total</b>			<b>238,435</b>	<b>100.00%</b>

Source: U.S. Census Bureau, 2005-2009 American Community Survey



**Table 3. Origin Mover Counts, 2005-2009 5 Year ACS**

	<b>State Name</b>	<b>County Name</b>	<b>Mover Count</b>	<b>Percent</b>
1	California	Los Angeles County	372,331	2.10%
2	Illinois	Cook County	235,603	1.33%
3	Texas	Harris County	177,438	1.00%
4	Arizona	Maricopa County	160,158	0.91%
5	California	San Diego County	157,041	0.89%
6	Texas	Dallas County	152,633	0.86%
7	California	Orange County	139,778	0.79%
8	New York	Kings County	126,622	0.72%
9	New York	New York County	121,879	0.69%
10	California	San Bernardino County	109,095	0.62%
11	Washington	King County	106,507	0.60%
12	Georgia	Fulton County	106,062	0.60%
13	Florida	Miami-Dade County	104,445	0.59%
14	New York	Queens County	98,843	0.56%
15	California	Riverside County	98,131	0.55%
16	Texas	Tarrant County	96,881	0.55%
17	Florida	Broward County	94,273	0.53%
18	Michigan	Wayne County	93,605	0.53%
19	Florida	Orange County	88,059	0.50%
20	California	Alameda County	87,532	0.49%
...				
3127	Texas	King County	24	0.00%
3128	Texas	Glasscock County	23	0.00%
3128	Texas	Kenedy County	23	0.00%
3130	Hawaii	Kalawao County	22	0.00%
3130	North Dakota	Oliver County	22	0.00%
3130	Texas	Terrell County	22	0.00%
3133	Nebraska	Arthur County	21	0.00%
3134	Nebraska	Hayes County	20	0.00%
3134	Texas	Borden County	20	0.00%
3136	North Dakota	Billings County	18	0.00%
3137	Nebraska	Blaine County	17	0.00%
3138	Nebraska	Grant County	16	0.00%
3139	North Dakota	Slope County	15	0.00%
3140	Texas	Loving County	8	0.00%
3141	Alaska	Yakutat City and Borough	4	0.00%
3142	Nebraska	Loup County	0	0.00%
3142	Nebraska	McPherson County	0	0.00%
Total			17,695,385	100.00%

\*Mover counts may not be statistically different from one another or ones not listed.

Source: U.S. Census Bureau, 2005-2009 American Community Survey

**Table 4. Destination Mover Counts, 2005-2009 5 Year ACS**

	<b>State Name</b>	<b>County Name</b>	<b>Mover Count</b>	<b>Percent</b>
1	California	Los Angeles County	212,882	1.20%
2	Arizona	Maricopa County	193,227	1.09%
3	Texas	Harris County	176,865	1.00%
4	Illinois	Cook County	142,089	0.80%
5	California	San Diego County	141,805	0.80%
6	California	Riverside County	131,483	0.74%
7	Texas	Dallas County	120,086	0.68%
8	California	San Bernardino County	118,089	0.67%
9	California	Orange County	115,174	0.65%
10	Washington	King County	104,353	0.59%
11	Nevada	Clark County	103,220	0.58%
12	Texas	Tarrant County	102,472	0.58%
13	New York	New York County	101,979	0.58%
14	Georgia	Fulton County	91,435	0.52%
15	Florida	Broward County	87,976	0.50%
16	Texas	Bexar County	85,264	0.48%
17	Massachusetts	Middlesex County	81,230	0.46%
18	California	Alameda County	80,359	0.45%
19	Texas	Travis County	78,927	0.45%
20	Georgia	DeKalb County	74,862	0.42%
...				
3126	Montana	Garfield County	25	0.00%
3127	Nebraska	Hooker County	25	0.00%
3128	Nebraska	Wheeler County	25	0.00%
3129	Alaska	Yakutat City and Borough	20	0.00%
3130	Nevada	Eureka County	20	0.00%
3131	Texas	Throckmorton County	20	0.00%
3132	Nebraska	Blaine County	16	0.00%
3133	Nebraska	McPherson County	16	0.00%
3134	Nebraska	Keya Paha County	15	0.00%
3135	Nebraska	Hayes County	14	0.00%
3136	Georgia	Baker County	10	0.00%
3137	Hawaii	Kalawao County	6	0.00%
3138	Texas	Loving County	4	0.00%
3139	Nebraska	Loup County	3	0.00%
3140	Colorado	Hinsdale County	2	0.00%
3141	Montana	Liberty County	2	0.00%
3142	North Dakota	Oliver County	2	0.00%
3143	Texas	Kenedy County	0	0.00%
<b>Total</b>			<b>17,695,385</b>	<b>100.00%</b>

\*Mover counts may not be statistically different from one another or ones not listed.

Source: U.S. Census Bureau, 2005-2009 American Community Survey

## **Appendix B: Geography**

### **County Equivalents**

Counties are the primary legal division in most states, but a few states have equivalent divisions known by different names. In order to get a complete partition of the United States and Puerto Rico, the following divisions are treated as county equivalents in the tables.

Borough (Alaska)  
Census Area (Alaska)  
City and Borough (Alaska)  
County (All except Alaska, District of Columbia, Louisiana, and Puerto Rico)  
District of Columbia  
Independent City (Maryland, Missouri, Nevada, Virginia<sup>15</sup>)  
Municipality (Alaska)  
Municipio (Puerto Rico)  
Parish (Louisiana)

### **Minor Civil Divisions**

The MCD/county-to-MCD/county tables include minor civil division estimates for the 12 states (Connecticut, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Wisconsin) that also serve as general-purpose local governments. The 12 states have various names for their minor civil divisions.

Borough (New Jersey, New York, Pennsylvania)  
Charter Township (Michigan)  
City (Connecticut, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Wisconsin)  
Gore (Maine, Vermont)  
Grant (New Hampshire, Vermont)  
Indian Reservation (Maine, New York)  
Location (New Hampshire)  
Plantation (Maine)  
Purchase (New Hampshire)  
Town (Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Wisconsin)  
Township (Michigan, Minnesota, New Hampshire, New Jersey, Pennsylvania)

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<sup>15</sup> In previous county-to-county flow products, some counties and independent cities were collapsed into single entities due to cognitive and geographic coding problems with migration data for places. (For the Census 2000 list of combined Virginia counties and independent cities see appendix B in Migration DVD documentation at [www.census.gov/population/www/cen2000/migration/mig\\_dvd.html](http://www.census.gov/population/www/cen2000/migration/mig_dvd.html)).

Unorganized Territory (Maine, Minnesota)

Village (New Jersey, Wisconsin)

### Puerto Rico

Prior to 2008 ACS, the questionnaire only requested respondents to answer “Puerto Rico” if they lived in Puerto Rico 1 year ago. The Puerto Rico questionnaire asked for a municipio or a U.S. county for movers, along with other geographic information; therefore, municipio level migration flow data from Puerto Rico to the U.S. are not available prior to 2008 but are available for flow from the U.S. to Puerto Rico.

The question was revised in 2008 to ask for the same geographic information on the Puerto Rico and stateside information allowing for estimates to be calculated for both flow directions. Because of the limited data for flows between Puerto Rico and the United States before 2008, municipios are aggregated to Puerto Rico for flows from Puerto Rico to stateside counties for the 2005-2009 county-to-county flow files. Flows between municipios and from U.S. counties to municipios are represented in the files.

### U.S. Island Areas and Foreign Countries

Outmigration from the United States and Puerto Rico to U.S. Island Areas or Foreign Countries is not available from the American Community Survey since only housing units and group quarters (e.g., college dormitories, military barracks, prisons) within the United States and Puerto Rico are sent questionnaires. The American Community Survey does collect data for U.S. Island Area or Foreign Country of residence 1 year ago. The tables include immigration from outside the United States and Puerto Rico aggregated to U.S. Island Areas and foreign region. A three letter code is used to identify these areas.

#### U.S. Island Areas (ISL):

American Samoa, Baker Island, Guam, Howland Island, Jarvis Island, Johnston Atoll, Kingman Reef, Northern Marianas Islands, Midway Islands, Navassa Island, Palmyra Atoll, U.S. Virgin Islands, Wake Island, U.S. Island Areas not specified.

#### Europe (EUR):

Albania, Andorra, Austria, Azores Islands, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czechoslovakia, Denmark, England, Estonia, Faroe Islands, Finland, France, Germany, Gibraltar, Greece, Guernsey, Hungary, Iceland, Ireland, Isle of Man, Italy, Jan Meyan, Jersey, Kosovo, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Malta, Madeira Islands, Moldova, Monaco, Montenegro, Netherlands, Northern Ireland, Norway, Poland, Portugal, Romania, Russia, San Marino, Scotland, Serbia, Slovenia, Spain, Svalbard, Sweden, Switzerland, Ukraine, United Kingdom, USSR, Vatican City, Wales, Yugoslavia, Europe not specified

#### Asia (ASI):

Afghanistan, Armenia, Azerbaijan, Bahrain, Bangladesh, Bhutan, Brunei, Cambodia, China, Cyprus, East Timor, Georgia, Hong Kong, India, Indonesia, Iran, Iraq, Israel, Japan, Jordan, Korea, Kazakhstan, Kyrgyzstan, Kuwait, Laos, Lebanon, Macau, Malaysia, Maldives, Mongolia, Myanmar (Burma), Nepal, North Korea, Oman, Pakistan,

Paracel Islands, Philippines, Qatar, Saudi Arabia, Singapore, South Korea, Spratley Islands, Sri Lanka, Syria, Taiwan, Tajikistan, Thailand, Turkey, Turkmenistan, United Arab Emirates, Uzbekistan, Vietnam, Yemen, Asia not specified

Northern America (NAM):

Bermuda, Canada, Greenland, St. Pierre & Miquelon, North American not specified

Central America (CAM):

Belize, Costa Rico, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Central America not specified

Caribbean (CAR):

Anguilla, Antigua and Barbuda, Aruba, Bahamas, Barbados, British Virgin Islands, Cayman Islands, Cuba, Dominica, Dominican Republic, Grenada, Guadeloupe, Haiti, Jamaica, Martinique, Montserrat, Netherland Antilles, St. Barthelemy, St. Kitts-Nevis, St. Lucia, St. Vincent and the Grenadines, Trinidad and Tobago, Turks and Caicos Islands, West Indies not specified

South America (SAM):

Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Falkland Islands, French Guiana, Guyana, Paraguay, Peru, Suriname, Uruguay, Venezuela, South American not specified

Africa (AFR):

Algeria, Angola, Benin, Botswana, British Indian Ocean Territory, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Democratic Republic of Congo, Djibouti, Egypt, Equatorial Guinea, Ethiopia, Eritrea, Europa Island, Gabon, Gambia, Ghana, Glorioso Islands, Guinea, Guinea-Bissau, Ivory Coast, Juan de Nova Island, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mayotte, Morocco, Mozambique, Namibia, Niger, Nigeria, Reunion, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, St Helena, Sudan, Swaziland, Tanzania, Togo, Tromelin Island, Tunisia, Uganda, Western Sahara, Zambia, Zimbabwe, Africa not specified

Oceania and At Sea (OCE):

Australia, Christmas Island, Cook Islands, Coral Sea Islands, Heard and McDonald Islands, Fiji, French Polynesia, Kiribati, Marshall Islands, Micronesia, Nauru, New Caledonia, New Zealand, Niue, Norfolk Island, Palau, Papua New Guinea, Pitcairn Islands, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, Wallis and Futuna Islands, Samoa, Oceania not specified, At sea

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